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Volume XIV

Number 16

Announcement of Winter Courses

New York State
College of Agriculture

1923-24

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CALENDAR 1923-24

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| Nov. 7, | Wednesday, | Registration in winter courses, beginning at 9 a. m., at the office of the Secretary, Roberts Hall. |
| Nov. 8, | Thursday, | Instruction begins in winter courses. |
| Nov. 19, | Monday, | Fee cards issued at office of the Secretary. |
| Nov. 24, | Saturday, | Last day for payment of fees at office of the University Treasurer, Morrill Hall. |
| Nov. —, | Thursday, | Thanksgiving Day. Holiday. |
| Dec. 21, | Friday, 1 p.m. | Instruction ends. |
| Jan. 4, | Friday, 1 p.m. | Instruction resumed. |
| Feb. 11-16, | | Seventeenth Annual Farmers' Week. |
| Feb. 15, | Friday, | Instruction ends in winter courses. |

} Christmas recess.

NEW YORK STATE COLLEGE OF AGRICULTURE

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 Edmund Louis Worthen, M.S., Extension Professor of Soil Technology.
 Julian Edward Butterworth, Ph.D., Professor of Rural Education.
 Ulysses Prentiss Hedrick, Sc.D., Professor of Pomology.†
 Lucius Lincoln Van Slyke, Ph.D., Professor of Dairy Chemistry.†
 Fred Carlton Stewart, M.S., Professor of Plant Pathology.†
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 Robert Stanley Breed, Ph.D., Professor of Dairy Bacteriology.†
 Rudolph John Anderson, Ph.D., Professor of Animal Nutrition.†
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 Arthur Chester Dahlberg, M.S., Assistant Professor of Dairy Industry.†
 James Chester Bradley, Ph.D., Professor of Entomology and Curator of Invertebrate Zoology.
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*Absent on leave.

†Located at the New York Agricultural Experiment Station at Geneva.

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 Paul Andrew Downs, M.S., Ph.D., Instructor in Dairy Industry.
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 Alice May Blinn, B.S., Extension Instructor in Home Economics.
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 Walter Van Price, M.S., Instructor in Dairy Industry.
 Mrs. Carolyn Brundage McIlroy, Instructor in Home Economics and Shop Director.
 Frances Artie Brookins, Instructor in Home Economics and Assistant Shop Director.
 William Theodore Grams, B.S. in Agr., Extension Instructor in Animal Husbandry.
 Raymond William Bell, B.S., M.S. in Agr., Instructor in Dairy Industry.
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 Luther Clinton Kirkland, B.S., Instructor in Farm Practice.
 Lois Ann Farmer, B.S., Instructor in Home Economics and Manager of the Cafeteria.
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 Floyd Hiram Peabody, Stockman in Animal Husbandry.
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 Edmond Adrian Perregaux, B.S., Instructor in Marketing.

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 Stewart Henry Burnham, B.S., Assistant Curator.
 Daniel Francis Kinsman, B.S., Assistant in Soil Technology.
 Wayne Eyer Manning, A.B., Assistant in Botany.
 Cynthia Westcott, A.B., Assistant in Plant Pathology.
 Thomas Levington Bayne, jr., M.S., Assistant in Rural Education.
 Cecil D. Schutt, Assistant in Animal Husbandry.
 Fred Harrison Dennis, Assistant in Plant Breeding Investigations.
 Elizabeth Keyes, B.S., Assistant in Biology.
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 Rufus William Johnson, B.S., Assistant in Agronomy.
 Pavao Kavakan, B.S., Assistant in Plant Breeding.
 Jackson Ambrose Kiester, A.B., Assistant in Plant Pathology.
 Robert Donald Lewis, B.S., Assistant in Plant Breeding.
 William M. Phipps, B.S., Assistant in Agronomy.
 Herbert John Pack, B.S., Assistant in Entomology.
 Theresa Marian Robinson, B.A., Assistant in Biology.
 John Marion Bruer, B.S., Assistant in Biology.
 Wilfred Douglas Mills, M.S., Assistant in Plant Pathology.
 Roland Willey Bartlett, B.S., Assistant in Marketing.
 Philip Carman Wakeley, B.S., Assistant in Forestry.
 Roger Bailey Corbett, B.S., M.S.A., Assistant in Marketing.
 Mona Kilpatrick, A.B., Assistant in Botany.
 Francis Irving Righter, B.S., Assistant in Forestry.
 Warren Brokaw MacMillan, B.S., Assistant in Forestry.
 Leah English, B.S., Analyst in Agronomy.

THE WINTER COURSES

The winter courses have been part of the regular work of the College of Agriculture since 1893, when the course in general agriculture was established. The courses are now seven in number.

1. Agriculture
2. Dairy Industry
3. Poultry Husbandry
4. Fruit Growing
- [5. Home Economics.] Not given in 1923-24.
6. Flower Growing
7. Vegetable Gardening

The course in agriculture is entirely elective, the student choosing his own schedule of subjects under the guidance of a faculty supervisor. The course is intended primarily for persons who are engaged in general farming or who expect to take up farming. The other six courses, or groups, are more or less fixed professional courses intended for persons who desire to specialize in the respective fields.

All the winter courses will begin on November 7, 1923, and will close on February 15, 1924. Instruction will begin at 8 a. m. on November 8. No work will be given on Thanksgiving Day; and none will be given from December 21, at 1 p. m., to January 4, at 1 p. m., these days being allowed for Christmas recess.

Correspondence concerning these courses and other instruction in the College of Agriculture may be addressed to The Secretary, College of Agriculture, Cornell University, Ithaca, New York.

Two-Years Courses

It is advised that students plan to spend at least two winters at the College, in the first winter taking general courses in agriculture, and in the second winter specializing in the subjects in which they are particularly interested. The large number of elective subjects in the course in agriculture makes it possible for students to register in that course for a second year without duplication of specified subjects of study.

Expenses

Tuition is free to those who are and have been residents of New York State for one year previous to registration. Non-residents pay a tuition fee of \$25. This fee is refunded if the student withdraws within five days for reasons satisfactory to the Comptroller and the Registrar of the University. One-half of the fee is returned if the student withdraws within two weeks from registration day.

There are a number of fees and incidental expenses, which are detailed under the description of each course, but practically the only large expense is the cost of living in Ithaca and railroad fare to and from Ithaca. Satisfactory table board can be procured in Ithaca, within five to fifteen minutes walk of the campus, for from \$7 to \$9 a week. Comfortable rooms near the place of boarding may be engaged at about \$3.50 a week for each person when two persons occupy the same room, and from \$4 to \$5 when one person occupies the room. The cost of books need not be more than \$10, but it has been the experience of winter-course students in the past that they wish to buy a number of books to take home, and it would be well, if possible, to allow at least \$15 for this item. The expenses of students in the winter courses of past years, as stated by them, have been from \$200 to \$300. By careful management this may be reduced somewhat; but it is best not to stint too much, since too great economy is likely to lessen the value of the course.

The laboratory fees and the expenses of observation trips are mentioned in the descriptions of the courses in the announcement; students are also liable for breakage due to carelessness on their part.

Infirmary fee. Students in the winter courses are required to pay an infirmary fee of \$3. In return for the infirmary fee, any sick student is, on his physician's certificate, admitted to the infirmary, and is given, without further charge, a bed in a ward, board, and ordinary nursing, for a period not exceeding two weeks. Extra charges are made for private rooms, special food, and special nurses. If a sick student who has not received two weeks service during the course is unable to gain admittance to the infirmary, by reason of lack of accommodation, he is entitled to a refund of the fee. The infirmary has no medical staff; students employ their own physicians among practitioners in Ithaca or elsewhere.

Fee cards. All the winter-course students must call at the office of the Secretary of the College of Agriculture on November 19, at which time the fee cards will be issued with tuition fee, infirmary

fee, and laboratory fees charged. The cards must be presented at the Treasurer's office in Morrill Hall and payment made not later than 1 p. m., Saturday, November 24.

Self-support. In the past, a few students have been obliged to earn money during the course and have worked at odd jobs about the University or on neighboring farms. This is never advisable unless absolutely necessary. It is much better to borrow the necessary money or to postpone the course of study until another year than to be thus handicapped during the limited time spent at the University. All energy should be concentrated on the work of the course.

Scholarships and Prizes

Grange Scholarships. At its thirty-first annual meeting, held in Cortland, February 4, 1904, the New York State Grange resolved to appropriate funds annually, to be given to members of the order in the form of scholarships in any of the winter courses in agriculture at Cornell University. The scholarships, now twelve in number, are each \$50 in cash, to be awarded to men and women who attain the highest standing on competitive examination. Awards are made each summer. These scholarships apply to the winter courses only, and not more than one is given in a county. Candidates should apply before June 1 to the Master of the Pomona Grange in their home counties, or to the Deputy in counties that have no Pomona Grange.

State Bankers' Association Scholarships. For 1923-24 the State Bankers' Association offers five scholarships of \$200 each, to be awarded to competitors among junior extension project workers of Class C. These scholarships are awarded primarily to those who desire to attend the winter courses at the State College of Agriculture. However, the Bankers' Association has stipulated that the winners may, upon recommendation of the Dean of the College, apply the award toward their expenses as students in the regular four-years course at the College or in courses at the State Schools of Agriculture at Alfred, Canton, Cobleskill, Delhi, and Morrisville, or at the State Institute of Applied Agriculture at Farmingdale. Project workers of Class C who wish to compete for these scholarships may address correspondence to Professor W. J. Wright, State Leader of Junior Extension, Ithaca, New York.

The American Agriculturist Scholarship. For 1923-24 the Amer-

ican Agriculturist offers a scholarship of \$200 to the junior extension worker of Class C showing the best record in the calf raising project. Competitors should address Professor W. J. Wright, State Leader of Junior Extension, Ithaca, New York.

Beatty Agricultural Scholarships. By the will of the late Harrison L. Beatty of Bainbridge, New York, the income of \$5,000 is devoted to three equal scholarships in the winter courses to be known as the Beatty Agricultural Scholarships. These scholarships are to be awarded to residents of Chenango County, one of whom shall be a resident of the town of Bainbridge. In making the award, equal consideration will be given to education and practical experience. Competitive examinations are held annually in Norwich and Bainbridge, New York, in the last week of September; the exact dates are to be announced to those applying for the examinations. The applications must be sent to the Secretary of the College of Agriculture, Ithaca, New York, by September 1.

The Jewish Agricultural Society of New York instituted, in 1908, a system of free scholarships to enable the children of Jewish farmers to attend the short winter courses offered by the agricultural colleges in the States in which they reside. The scholarships are awarded by competition, which consists in the writing of a brief essay on an agricultural topic. Children of Jewish farmers living and working on the farms of their parents are eligible to compete for these scholarships. The number of scholarships is not limited. For the New York State College of Agriculture at Cornell University, a number of these scholarships have been awarded each year since their establishment. Application should be made to the Jewish Agricultural Society, 174 Second Avenue, New York City.

Indian Scholarships. A limited number of scholarships are offered to Iroquois Indians. For particulars apply to the Indian Agricultural Society of your reservation, or to the Indian Extension Staff, College of Agriculture, Ithaca, N. Y.

Prizes. The various winter-course clubs compete every year for the Morrison Trophy Cup, the contest ordinarily being a series of debates. There is also a silver cup offered by Mrs. Florence M. Nevin as a prize for proficiency in public speaking.

Admission

The winter courses are business and occupational courses, not academic; hence there are no examinations for admission. How-

ever, in order that the student may be able to make the best use of the instruction it is necessary that he should have had a good common school education. Winter-course students are sometimes seriously handicapped in their work by being deficient in arithmetic and in English. Persons who are planning to take a winter course are advised to review these subjects before coming to Ithaca.

Applicants for admission to the winter courses should, by way of preparation, read carefully some of the best books, bulletins, and other literature on the subject to which their attention will be chiefly directed while at Cornell University.

Women who desire to pursue one of the winter courses should correspond with Professor Martha Van Rensselaer, Ithaca, New York, in regard to rooms and accommodations. All women students registered in any of the winter courses are under the supervision of Professor Van Rensselaer during the period of the courses.

Age. All the courses are open to both men and women of at least eighteen years of age. There is no limit to the age above eighteen; some of the best winter-course students have been mature men and women, owners of farms or managers of dairy or poultry plants.

Application. This circular contains an application blank for admission to the winter courses and a schedule sheet for courses to be taken. Both of these should be made out in full and forwarded to the Secretary at once by any person who is considering, even though indefinitely, attending any one of the winter courses. The filing of an application for admission does not constitute an obligation to attend, and applications may be withdrawn at any time.

Any one who has graduated from the common schools of the State, or who has an eighth-grade certificate, should be able to do the winter-course work satisfactorily. When making application, candidates for admission should give a description of their school training and if possible should send a certificate or a statement from the teacher of the school last attended.

Applicants for the professional course in poultry husbandry must have had at least six months active and consecutive work on an approved farm or poultry plant. A statement signed by the employer stating the kind, amount, and quality of work done, must accompany the application for admission.

Arrival at Ithaca. Students who desire advice concerning lodgings and boarding places are invited to come directly to the College of Agriculture on their arrival in Ithaca. It is desirable that all housing arrangements should be completed before registration day.

Registration

On Wednesday, November 7, beginning at 9 a. m., all students must report for registration at the office of the Secretary of the College of Agriculture, Roberts Hall. After registering here, students will go at once to the headquarters of their particular winter course or to their faculty supervisor, as assigned. The headquarters of the several professional winter courses are as follows:

Course in dairy industry, Dairy Building, department office; course in poultry husbandry, Poultry Building, room 325 (third floor); course in fruit growing, Roberts Hall, room 202 (second floor); course in flower growing, Roberts Hall, room 212 (second floor); course in vegetable gardening, Poultry Building, room 253 (second floor). Students in the course in agriculture will be assigned to their faculty supervisors at the time of their registration.

Study cards. After the student has registered he may not change his schedule of courses in any respect except on the recommendation of the head of the winter course concerned, or of his faculty supervisor, and with the approval of the Secretary. The schedule sheet, which the applicant fills out in advance, may subsequently be changed at the request of the applicant, and is not to be confused with the study card, which is made out when the student registers.

Methods of Instruction

Instruction in the winter courses is given by lectures, by such practical work (laboratory practice) in the various agricultural operations as can be conducted at that time of the year, and sometimes by trips or excursions to points of special interest.

The lectures are given in large part by the regular staff of the College of Agriculture. The lectures are plain and practical, in the style of farmers' institute talks. So far as possible, collected material is used for illustrating the subjects; when this is impossible, lantern views are often used. Free discussion by the students of the subject under consideration is encouraged. Further opportunity for general discussions is afforded in the meetings of the winter-course clubs.

Special lectures for the winter-course students are given in Roberts Hall 131 at 9 a. m., on Friday of each week, and all students are required to attend. The lectures will be given by members of the university faculty and by men of successful experience in agriculture.

The winter-course students are welcomed at the various addresses given by eminent men before the University in general.

Practical Work is made a special feature in the winter courses. The student is expected to perform all the various operations as carefully as if he were working at home as a practical farmer. In the courses in dairy industry, poultry husbandry, and home economics, the instruction is in large part practical, and the students have an opportunity of becoming familiar with all the essential operations in these enterprises. In the courses in agriculture, fruit growing, flower growing, and vegetable gardening, there is necessarily a smaller amount of practical work; advantage is taken, however, of the greenhouses, barns, and laboratories, in demonstrating to the students some of the operations that would naturally be conducted in the summer season. Whenever possible, the aim is to make the practical work take up as large a part of the student's time as do the lectures.

Excursions to points of special interest have been made a feature of the course in poultry husbandry. Such excursions are conducted in other courses also whenever practicable.

The word *hour* in the following schedules means one lecture of one hour each week, or one period of two and one-half hours of laboratory or practice each week during the term.

Certificates

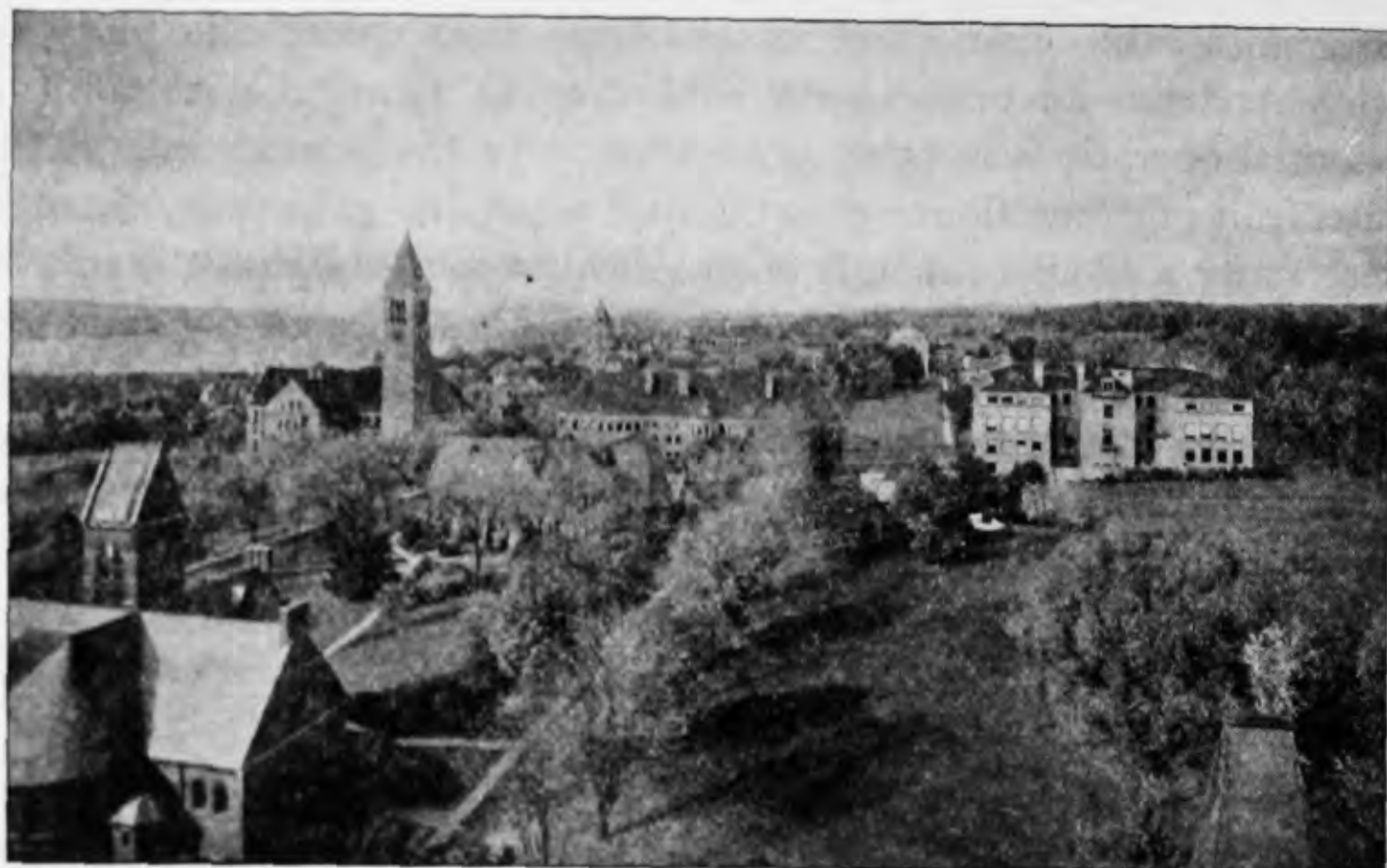
Students who complete a schedule of at least fifteen hours with grades of D or better will be given certificates of record. Students desiring such certificates must notify the Secretary's office before the close of the course.

The City and the University

Ithaca is situated in Tompkins County, at the head of Cayuga Lake. It is a city of about seventeen thousand inhabitants. It is reached by the Lehigh Valley, the Delaware, Lackawanna and Western, and the Auburn Short Line, Railroads. The University stands on a plateau about four hundred feet above the lake. The officers of instruction and administration at Cornell University number nearly eight hundred. The campus and farms cover 1,436 acres. The New York State Game Farm, established under control of the University, lies adjacent to the university farm and comprises 166 acres.

The buildings of the University are more than thirty-five in number.

providing quarters for the several colleges of the University. These are Agriculture, Architecture, Arts and Sciences, Engineering, Graduate School, Law, Medicine, and Veterinary Medicine.



THE UNIVERSITY IS ON A PLATEAU ABOUT 400 FEET ABOVE CAYUGA LAKE

The New York State College of Agriculture at Cornell University occupies buildings erected by the State subsequent to 1904. These buildings are large and well equipped, and afford an attractive home for the College.

Social and Religious Advantages

Every year the students in each of the several winter courses have formed clubs. The societies meet once a week and debate subjects of special interest, discuss various problems, sing college songs, and indulge in other forms of social enjoyment. Every winter-course student is urged to attend these meetings.

The winter-course students are welcomed at the meetings of the Agricultural Association, the Dairy Club, the Poultry Association, the Round-up Club, and the other organizations of students in the College. The meetings of these societies are devoted to discussions of live agricultural subjects and to the promotion of friendship among the students.

Religious services, provided for by the Dean Sage Preachership Endowment, are conducted in Sage Chapel throughout the college

year, by eminent clergymen selected from the various religious denominations. These services are supplemented by the Cornell University Christian Association, a voluntary organization of students and professors formed for their own religious culture and the promotion of Christian living in the University. The Christian Association has its home in Barnes Hall. It has a permanent secretary. Several church denominations are represented at Cornell by special pastors who also serve as secretaries of the Christian Association and have offices at Barnes Hall. These, with the executive secretary and the hostess, constitute the staff of the Christian Association. The Association has a carefully-selected Biblical library and comfortable reading and recreation rooms, with a Coffee House which is open daily from 9 in the morning until 11 at night. Courses in Bible study are conducted throughout the year, and special courses are provided for students in the winter courses.

In addition to the Young Men's Christian Association there is a flourishing Young Women's Christian Association, with quarters in Barnes Hall.

The students of the University are welcomed by the numerous churches in the city of Ithaca at all their services.

Positions

The College does not promise to find positions for students registered in any of its courses, but it has opportunity to recommend students for a large number of positions. Some students who have completed a winter course have obtained an increase in salary in the following season sufficient to pay the entire cost of the course. Such results, while of course not guaranteed, show that there are excellent opportunities for trained men.

A student desiring a recommendation from the College must fulfill the following conditions: (1) He must be of good character; (2) his previous record must be good; (3) his work in the winter course must be satisfactory.

In the case of the course in dairy industry, previous experience in a well-conducted dairy plant is strongly advised for those who expect the College to recommend them for positions.

In the case of the course in poultry husbandry, it is recommended that persons inexperienced in the handling of poultry spend at least a year in acquiring practical knowledge of the business before entering this course. Students who have not previously had a considerable

amount of farm or poultry experience cannot, as a rule, be recommended to positions of responsibility until they have spent a season on an approved poultry farm. This is particularly true for the better positions, in which managers or superintendents are wanted to take charge of poultry farms.

DESCRIPTION OF THE WINTER COURSES

I. COURSES IN AGRICULTURE

Most of the young men who come for a winter course expect to engage in general farming or hope to obtain positions as superintendents of farms on which diversified agriculture is practiced. It is for these that the general course in agriculture is especially designed. Persons who plan to specialize will register in one of the professional courses or groups.

On the other hand, the course in agriculture can be taken with advantage also by those who plan to do special work in agriculture later. It gives an opportunity for laying a broad foundation of general knowledge as a basis for subsequent specialization. This course gives a general survey of agriculture in practically all its phases. It is strongly advised that persons desiring to pursue one of the special winter courses should first take the course in agriculture and postpone their special work to the following winter.

Choice of subjects. Students may choose from the following courses such subjects as they desire to take and are able to schedule without conflict. No student may take less than twelve or more than a total of eighteen hours without special permission, and sixteen hours is as much as the average student can carry satisfactorily. [For definition of hour, see page 15.]

So far as students in general agriculture are concerned, the courses in farm crops and soil fertility form a unit, and these courses cannot be selected separately by these students.

Agricultural Economics and Farm Management

1. **Farm Records and Accounts.** Two hours a week. Lecture, W, 3. East Roberts 222. Laboratory, M, W, or F, 10-12.30. Farm Management Building 102. Assistant Professor NOBLE.

Farm inventories; cash accounts; income tax reports; single-enterprise cost accounts; complete farm cost accounts; other farm records. Special emphasis is given to the interpretation of results and their application in the organization and management of farms. Laboratory fee, \$2.

2. Farm Management. Three hours a week. Lecture, M F, 3. East Roberts 222. Laboratory, T, Th, or S, 10-12.30. Farm Management Building 102. Mr. SPENCER.

Lectures, recitations, and laboratory practice. Farming as a business; types of farming; balance of business; size of business; rates of production; farm layout; building arrangement; marketing; ways of starting farming; forms of tenure and leases; choosing and buying a farm; use of capital and credit; planning, organization, and management of specific farms. Laboratory fee, \$1.

Agronomy

200. Soil Fertility. Three hours a week. Section A, Lectures, M W F, 2. One demonstration period a week, T or F, 11-1. Caldwell Hall 100. Professor BUCKMAN. Section B, Lectures, T Th S, 8. One demonstration period a week, M or W, 11-1. Caldwell Hall 100. Professor WORTHEN.

An elementary course dealing with those physical, chemical, and biological properties of the soil that have special practical applications. The use of lime, manures, and fertilizers will be an important phase of the work.

201. Farm Crops. Three hours a week. Lectures, M W, 8. Caldwell Hall 100. Laboratory, Section A, M, 11-1; Section B, Th, 11-1; Section C, F, 11-1. Caldwell Hall 250. Assistant Professor COOPER.

A study of field-crop production with special emphasis on the culture, uses, and distribution of the principal farm crops.

Students taking this course must take also Agronomy 200. Laboratory fee, \$1.

Animal Husbandry

1. Feeds and Feeding. Two hours a week. Lecture, M, 2. Animal Husbandry Building A. Practice, Section A, F, 10-12.30; Section B, S, 10-12.30. Professor SAVAGE and Mr. KRAUSS.

The principles and practices of compounding rations and of feeding farm animals

2. Principles of Breeding Dairy Cattle. Three hours a week. Lectures, T Th, 9. Animal Husbandry Building A. Practice, Section A, W, 11-1; Section B, S, 8-10. Dr. ALLEN and Mr. BLAKELY.

Origin and development of the dairy breeds of cattle; care and management of the dairy herd; milk production; practice in judging and scoring.

3. Swine. Credit, one and one-half hours. Lectures, first six weeks of the winter course, T Th, 11. Animal Husbandry Building. Practice, W, 2-4.30. Animal Husbandry Pavilion. Assistant Professor HINMAN.

Types of swine, with their adaptations and breeds. The care and management of the farm herd. Fattening for market. Housing; range and forage crops. Practice in judging, with carcass work.

4. Sheep. Credit, one and one-half hours. Lectures second six weeks of the winter course, T Th, 11. Animal Husbandry Building. Practice, W, 2-4.30. Animal Husbandry Pavilion. Assistant Professor HINMAN.

Selection, breeding, feeding, and management of the farm flock throughout the year. The breeds, with their special features. Fattening lambs and wethers. Simple features of sanitation and building. Wool grading.

5. Beef Cattle. Credit, one and one-half hours. Lectures, first six weeks of

the winter course, T Th, 10. Animal Husbandry Building. Practice, F, 1-3. Animal Husbandry Pavilion. Mr. VIAL.

Breeds of beef cattle, with adaptations of each. The place of beef cattle in mixed farming. The management of a breeding herd throughout the year. Selection, buying, feeding, and marketing of feeders. Judging animals on foot and as carcasses.

6. **Horses.** Credit, one and one-half hours. Lectures, second six weeks of the winter course, T Th, 10. Animal Husbandry Building. Practice, F, 1-3. Animal Husbandry Pavilion. Mr. VIAL.

Breeding, feeding, and care of farm work horses. Breeds of draft horses, their characteristics and adaptations. Judging. Common unsoundnesses.

Dairy Industry

8. **General Farm Dairying.** For students in general agriculture only. Four hours a week. Must be preceded or accompanied by course 10. Lectures, T Th, 8. Dairy Building 120. Laboratory practice, Section A, T, 1-5; Section B, W, 9-1. Limited to fifteen students in a section. Dairy Building. Professor ROSS and Mr. CURRAN.

This course will deal with the manufacture and handling of farm dairy products, including the care and handling of milk; operation of hand separators; making butter; starter making; manufacture of some of the farm cheeses; ice cream; storing ice; judging dairy products; use of the score card for judging dairy barns. Laboratory deposit, \$3 (part returnable), to cover breakage and for laundering of white suits.

10. **Milk Composition and Tests.** For students in general agriculture only. Two hours a week. Lecture, W, 2. Dairy Building 218. Laboratory, M, 10-12.30. Dairy Building 209. Professor TROY, Assistant Professor MCINERNEY, and Mr. ———.

The course deals with the composition and secretion of milk; the Babcock test for fat in milk and its products; acid tests, salt tests, moisture tests; use of the lactometer; some of the simple tests for preservatives and adulterations. Laboratory deposit, \$2 (part returnable), to cover breakage and for rental of laboratory apron.

Entomology

1. **Injurious Insects.** Two hours a week. Lectures, T Th, 3. Roberts Hall 292. Professor HERRICK.

The common insect pests of farm, garden, and orchard will be discussed, and measures of control will be carefully considered. Specimens of the insects discussed, together with examples of their work, will be shown to members of the class whenever possible. Opportunity will be given for questions and discussions, with the hope of clearing up obscure points and the various phases of the problems. The lectures and discussions will be illustrated by lantern slides and by charts.

NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY

APPLICATION FOR ADMISSION TO WINTER COURSES

Remove this application without separating the pages

Print name clearly, using pen and ink or typewriter

Name of applicant IN FULL
Last name First name Second name

Permanent home address (number and street, or R. F. D.)

Place *County* *State*

Date of birth, month *day* *year*

Nationality *Married* *Date of this application*

Name and address of parent or guardian, or person to be notified in case of serious illness or accident

.....

School or college attended (Indicate clearly the type of school or course).....

Name of school *Place* *Period of attendance*

.....

.....

.....

.....

Have you received any degree or certificate? *What?* *Where and when?*

OVER

What has been your practical experience in farm work and in the special work covered by the winter course in which you are registering?.....

What has been your residence and occupation during the past five years?.....

Occupation 1919.....*Place*.....*State*.....

Occupation 1920.....*Place*.....*State*.....

Occupation 1921.....*Place*.....*State*.....

Occupation 1922.....*Place*.....*State*.....

Occupation 1923.....*Place*.....*State*.....

What church do you attend?.....

REFERENCES.*—*I am personally acquainted with the above applicant, and know.....to be of good moral character, industrious, studious, and physically and otherwise capable.*

Name.....*Name*.....

Position.....*Position*.....

Address.....*Address*.....

*Two endorsements are necessary, and should be preferably by your teacher and your pastor or a public official, not a member of your own family. These persons should sign the application themselves.

NOTE.—The applicant must answer ALL the questions asked on both sides of this application blank. When the blank has been answered in full, mail it to Robert P. Sibley, Secretary, College of Agriculture, Cornell University, Ithaca, New York.

Name.....
Last name First name Middle name

SCHEDULE OF SUBJECTS

IMPORTANT:—Before filling out the blanks on this page, make out a form such as is given on the reverse side.

Indicate by a check mark (✓) the one of the following seven courses in which you desire to register. Do not check more than one course.

1. Agriculture
2. Dairy Industry
3. Poultry Husbandry
4. Fruit Growing
5. Home Economics] Not given in 1923-24
6. Flower Growing
7. Vegetable Gardening

If you desire to specialize in either the professional course in dairy industry or the professional course in poultry husbandry, it is not necessary for you to fill out the remainder of the blanks on this page.

If you are registering in any of the other five courses, write here the number and the name of each subject that you desire to take, using the number given in the catalogue. Example: No. 2, Subject Agricultural Economics and Farm Management. Without special permission, no student is allowed to take less than twelve or more than eighteen "hours" of work. For definition of "hour," see page 15.

| | | |
|----------|---------|---|
| No. | Subject | Lecture, required of all students |
| No. | Subject | |
| No. | Subject | |
| No. | Subject | |
| No. | Subject | |
| No. | Subject | |
| No. | Subject | |
| No. | Subject | |
| No. | Subject | |
| No. | Subject | |

After filling out this schedule completely according to directions, mail it, with your application for admission, to Robert P. Sibley, Secretary.
(OVER)

TIME SCHEDULE

Before filling out the previous page the applicant should make sure, by means of a form similar to the one shown below, that the subjects he desires do not conflict in time. Most of the courses offer options in laboratory periods so that with the exercise of care one can generally arrange to include the subjects desired.

| | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|-------|--------|---------|-----------|----------|------------------|----------|
| 8-9 | | | | | | |
| 9-10 | | | | | Required Lecture | |
| 10-11 | | | | | | |
| 11-12 | | | | | | |
| 12-1 | | | | | | |
| 1-2 | | | | | | |
| 2-3 | | | | | | |
| 3-4 | | | | | | |
| 4-5 | | | | | | |
| 5-6 | | | | | | |

Extension Teaching

1. **Extension Work.** One hour a week. Lecture and discussion, W, 4. Roberts Hall 131. Criticism by appointment, daily, 8-1. Mr. PEABODY.

A study of the problems of university extension in agriculture. Practice in the oral and written presentation of topics in agriculture, with criticism and individual conferences on the technic of public speech. The course is designed to acquaint students with parliamentary practice, to encourage interest in public affairs, and to train for effective self-expression in public. Open to all students in the winter courses.

Special training will be given to competitors for the winter-course prize in public speaking. This prize is a silver cup given to the College by Mrs. Florence M. Nevin, of the winter course of 1918-19. It is to be retained by the College, and the name of the winner is to be engraved upon it. Competition is open to all winter-course students.

2. **Rural Journalism.** Two hours a week. Lectures, T Th, 4. Roberts Hall 292. Professors ADAMS and ATWOOD.

An elementary study of journalism, intended primarily for persons interested in rural community activities who have to prepare news items and notices for country newspapers and farm bureau publications. Opportunity for practice in writing will be given. The place of the country newspaper in community life will be discussed.

Floriculture and Ornamental Horticulture

3. **Planning and Planting Rural Properties.** Three hours a week. Lecture, Th, 2. Practice, W, 10-1. Caldwell Hall. Assistant Professor PORTER.

A discussion of the principles underlying simple arrangements and planting in home grounds, school grounds, and village improvement work.

The course will consist of lectures to illustrate fundamental principles and of practice and field trips to observe land conditions; making small surveys; preparing simple plans; learning the common plants, and utilizing them in planting practice.

4. **Woody Plant Materials.** Two hours a week. Lecture, T, 9. Practice, T, 10-1. Basement, East Roberts. Professor R. W. CURTIS.

A brief study of the characteristics and requirements of trees, shrubs, and vines for landscape planting.

The practice and field trips enable students to recognize common woody plants. The lectures discuss planting areas, planting practices, and plant materials, the last named from the point of view of plants as elements in composition in order that the student may learn to see plants not only as growing things but as possible units in planting design with which to improve our landscape environments. Laboratory fee, \$1.

5. **Amateur Floriculture.** Three hours a week. Lectures, T Th, 3. Floriculture Building. Practice, T, 10-12.30. Greenhouses. Miss MINNS.

This course is designed primarily for persons interested in growing plants in the house. Plants best suited for house culture will be considered, also plants for indoor and outdoor window boxes and veranda boxes. Methods of preparation of soil, propagation, potting, and seed sowing will be studied. This course will not

be given unless there is a registration of at least five persons. Laboratory fee, \$1.50.

6. **Gardening and Garden Flowers.** Three hours a week. Lectures, M W, 9, Th, 10. Greenhouses. Miss MINNS.

A course designed to study the methods of propagation and growing of outdoor annuals and herbaceous perennials. Studies will be made, so far as possible, of individual garden problems. The culture of outdoor roses, asters, peonies, phlox, iris, and bulbous plants will be considered. Occasional laboratory periods, which are optional for the students, will be held. Laboratory fee, \$1.

Forestry

1. **The Farm Woodlot.** One hour a week. Lecture, M, 10. Fernow Hall 210. On three Saturday afternoons there will be field trips or laboratory periods. Mr. ———.

This course is designed to present certain phases of forestry that are of value in farm work. The course covers the methods of identifying the principal trees of this region; the care of the woodlot, including tree planting for timber and wind-breaks; thinning, cutting mature timber; methods of measuring the amount of standing and felled timber; protection from fire and other enemies; preservative treatment of posts; the making of maple sugar.

[Home Economics] Not Given in 1923-24

Meteorology

1. **Elementary Meteorology.** Two hours a week. Lecture, M, 9. Laboratory, W, 9-11. East Roberts. Assistant Professor MORDOFF.

This course is designed to present the more essential phases of meteorology and climatology and their relations to agriculture. Some time will be spent in studying the principles and methods of practical weather forecasting from weather maps and local observations.

Plant Breeding

1. **Plant Breeding.** Two hours a week. Lectures and discussions, T Th, 9. Fernow Hall 210. Assistant Professor BUSSELL.

A consideration of some of the general biological principles concerned in reproduction in plants, and the better-known facts of heredity and variation, followed by discussion of the methods of plant breeding as applied to certain types of crops.

Plant Pathology

1. **Plant Diseases.** Three hours a week. Lectures, S, 9. Roberts Hall 292. Practice, Section A, for students in vegetable gardening, M, 9-12, W, 8-10; Section B, for students in fruit growing, T, 11-1; Th, 10-1; Section C, for students in flower growing, W, 11-1; F, 10-1. Bailey Hall, West Basement. Professor BARRUS and Messrs. KIRBY and KIRSTER.

The first two weeks will be spent in studying the structure and development of

plants and of organisms causing disease. The more important diseases of commercial crops will then be studied carefully in regard to their symptoms, cause, and control. Students will have an opportunity during the latter half of the term to select for study certain diseases in which they have a special interest. Laboratory fee, \$1.50, breakage deposit, \$3.

Pomology

2. **General Fruit Growing.** Three hours a week. Lectures, T W Th, 9. Roberts Hall 292. Professor HEINICKE.

This lecture course is designed for students who desire a general knowledge of fruit growing. It covers practically the same topics as course 1 in fruit growing (page 33), but in less detail.

Poultry Husbandry

11. **Farm Poultry.** Four hours a week. Lectures, M W F, 5-6. Poultry Building 375. Laboratory practice, T or W, 10.30-1. Poultry Building 300. Professors RICE and HEUSER, Assistant Professors BOTSFORD and WEAVER, and Messrs. KRUM, BRADLEY, POWELL, HALL, and LEE.

A discussion of the domestic breeds of poultry; hatching and rearing; the principles of breeding, feeding, and management; marketing; diseases of poultry; the building of poultry houses; related matters. Laboratory fee, \$3.

Rural Education

1. **Educational Problems of Rural New York.** Two hours a week. Lectures and discussion, T Th, 8. Caldwell Hall 282. Professor STEWART.

A consideration of the more important educational problems confronting rural New York. The educational opportunities of boys and girls in rural communities, the social demands made upon the school, the trend of educational development in the State, and the opportunities which teaching positions afford are some of the problems studied.

Rural Engineering

1. **Farm Mechanics.** Three hours a week. Lectures, T Th, 2. Rural Engineering Building. Practice, Th or S, 10-1. Farm Mechanics Laboratory. Professor ROBB and Mr. WRIGHT.

A course dealing with knots and splices of ropes; shafts, pulleys, belts, and belt lacing; gasoline engines; pumps and water systems; care and adjustment of farm machinery; the farm shop and its equipment. Laboratory fee, \$2.

Vegetable Gardening

2. **Principles of Vegetable Gardening.** Three hours a week. Lectures, M F, 4. Poultry Building 175. Laboratory S, 10.30-1. Vegetable Greenhouses. Assistant Professor SCHNECK.

This course is designed for students who desire a general knowledge of vegetable

growing, and for those interested in the production of vegetables in home gardens. The lectures deal with planning and management of the vegetable garden, vegetable soils and fertilizers, growing early plants, special requirements of the important vegetable crops, and control of pests. The laboratory work consists chiefly of practice in plant growing in the greenhouses. Laboratory fee, \$1.50.

Veterinary Medicine

1. **Diseases of Dairy Cattle, and Veterinary Hygiene.** One hour a week. Lecture, S, 9. Veterinary College, Small Lecture Room. Doctor HAYDEN.

This course includes a discussion of the commonest diseases of dairy cattle, the prevention and cure of these diseases, ventilation of stables, and general questions of animal hygiene.

II. COURSE IN DAIRY INDUSTRY

The course in dairy industry is intended especially for persons who plan to operate commercial dairy plants, and students expecting to enter this field professionally should register in this course. The work of the course requires the student's entire time. This course is not intended for persons who plan to follow dairy farming. Those wishing to study the manufacturing side of dairy farm work should register in the farm dairy courses outlined on page 20. Neither is this course intended for persons preparing to occupy positions as herdsmen, or as testers in advanced registry work, or in cow testing associations. Students wishing to qualify themselves for such work should take dairy industry courses 8 and 10, animal husbandry courses 1 and 2, and such other subjects as may be recommended by the faculty adviser.

There will be a meeting of dairy-course students and teachers in lecture room 218 of the Dairy Building at four o'clock on the afternoon of registration day, November 7. All students registered in the winter course in dairy industry are required to attend this meeting.

Special Expenses

| | |
|--|---------|
| Laboratory fee (to pay in part for materials used) | \$15.00 |
| Laboratory deposit (part returnable) to cover laundry and breakage | 8.00 |
| Books, about | 10.00 |
| One suit of blue overalls, about | 3.00 |
| Three white suits, with caps, about | 10.00 |
| One rubber apron, about | 1.00 |
| Waterproof footwear is necessary for work in the dairy laboratories. | |

Books, notebooks, and the special clothing listed above can be purchased in Ithaca.

Methods of Instruction

Instruction, although partly by lectures and recitations, is largely by actual practice in the different kinds of dairy work. The class assembles daily at 8 a. m., and the class work continues for two hours. Lectures and recitations are given in one-hour periods. Frequently they are replaced by examinations; often, also, a part of the hour is occupied by informal discussions of former lectures or of topics previously assigned for study. The lectures are supplemented by references to dairy literature, books, current periodicals, and experiment station publications.

The students are assigned, in sections, to different kinds of practice, the assignments being so made that in the course of the term each student has a due amount of work in each of the various divisions.

The first six weeks of the term will be occupied in studying the composition of milk, and methods of testing; the bacteriology of dairy products; dairy chemistry; dairy arithmetic and bookkeeping; dairy mechanics.

Required Subjects

The subjects of the required lecture and practice courses for the first half of the term are as follows:

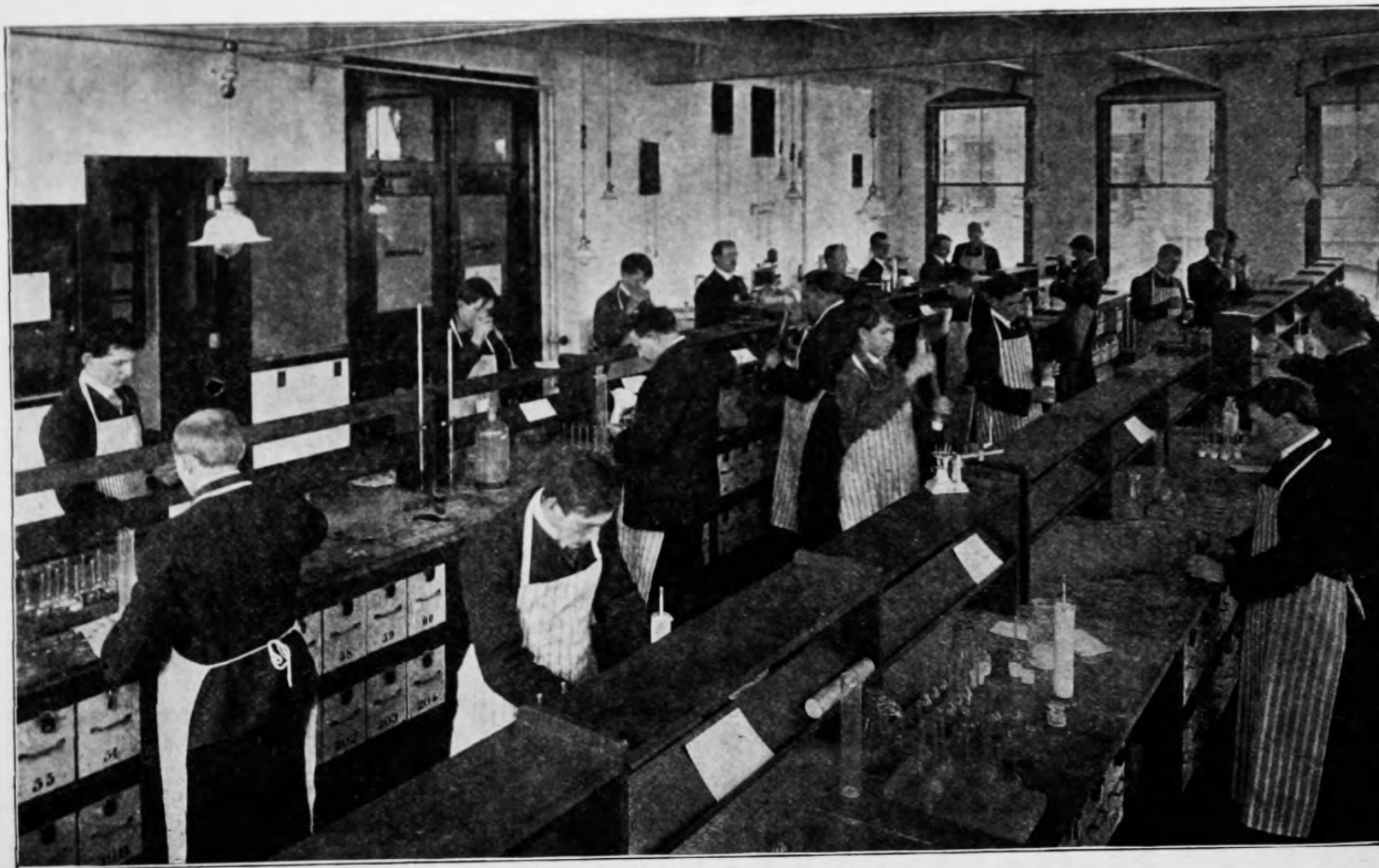
200. **Milk Composition and Tests.** Credit three hours. Lectures, W Th, 9, F, 8. Dairy Building. Practice, by appointment, W, 10-1, Th, 2-5, F, 10-1, or W, 2-5, Th, 10-1, F, 2-5. Dairy Building 209. Professor TROY, Assistant Professor MCINERNEY, and Mr. ———.

This course includes the composition and secretion of milk; the Babcock test for fat in milk and its products, acid tests, salt tests, moisture tests; use of the lactometer; calculating milk solids; some of the simple tests for preservatives and adulterations. A thorough drill will be given in making all these determinations. The testing laboratory is furnished with all necessary equipment.

201. **Dairy Bacteriology.** Credit, two hours. Lectures, M, 9, W, 8. Dairy Building 218. Practice, by appointment, M Th, 10-1, or T F, 10-1. Dairy Building 301. Professor STOCKING and Messrs. ——— and ———.

This course considers the nature of bacteria and their relation to dairy work, including their sources, action on milk, butter, and cheese, and the methods of controlling their growth.

The laboratory is equipped with modern apparatus for the preparation and sterilization of glassware and media, the plating of samples, and the incubation of organisms. Studies are made of the various bacteria commonly found in



PROSPECTIVE MILK TESTERS AT WORK

A completely equipped laboratory offers facilities for those who wish to study milk composition and milk tests

milk. Students are given practice in plating samples, counting organisms, and making microscopic examinations.

202. **Dairy Chemistry.** Credit one hour. Lectures, T S, 9. Dairy Building. Professor TROY.

The elementary principles of chemistry are explained in order that the student may better understand the composition of dairy products and the chemical changes connected with and influencing dairy operation.

203. **Dairy Arithmetic and Bookkeeping.** Credit one hour. Practice, by appointment, M, 10-1, T, 2-5, or M, 2-5, T, 10-1. Dairy Building 120. Professor GUTHRIE and Mr. ———.

A thorough drill is provided in such problems as are constantly arising in all kinds of dairy work and in the keeping of factory accounts.

204. **Dairy Mechanics.** Credit three hours. Lectures, T S, 8. Dairy Building 218. Practice, by appointment, W, 10-1, M Th, 2-5, or T W F, 2-5. Dairy Building 235. Messrs. AYRES and ———.

Students receive practice in the firing, care, and operation of boilers, and in the care and operation of steam and gasoline engines, cream separators, refrigeration machinery, and other dairy equipment. Practical work is also given in the installation of shafts and pulleys, pipe fitting, belt lacing, and soldering.

In the last six weeks of the course the student will be given laboratory practice, supplemented by lectures, in such branches of dairy manufacturing as he may choose after consultation with the department. The following courses are offered:

205. **Butter.** Credit three hours. Lectures, M Th, 8. Dairy Building 218. Practice by appointment, M T, W Th, or F S, 10 a.m.-5 p.m. Dairy Building 133. Messrs. AYRES and ———.

This course deals with the principles and practice of butter making, from the receiving of the milk and cream to the judging and marketing of the finished product; construction and arrangement of creameries; accounts and business methods.

The creamery is furnished with apparatus such as is found in a well-equipped commercial plant. The milk is received, weighed, sampled, and separated, and the entire process of ripening cream and of churning is carried through in the most thorough manner. Special attention is given to the use of starters. Every step of the work is performed by students under the close supervision of the instructor.

206. **Cheese.** Credit five hours. Lectures, M, 9, T, 8. Dairy Building 120. Practice, T W Th, 10 a.m.-5 p.m. Dairy Building 157. Professor PISK and Mr. OWENS.

The work includes the principles and methods of making cheddar, or American, cheese. Attention is given to the making and use of starters; the judging and marketing of cheese; factory accounts; the construction and equipment of cheese factories.

The cheese room is equipped with all necessary apparatus, such as is used in large factories, for making cheddar cheese. All the work is performed by students, and every step is carefully observed and reported by them on blank forms provid-



THE NEW DAIRY BUILDING
(Architect's drawing)

This building is being completed and will be ready for the use of the winter-course dairy students of 1923-24. The main part of the building is used for recitation rooms, laboratories, and research. The lower part, of factory construction, contains the laboratories for work in the manufacture of dairy products

ed for the purpose. Special attention is given to judging the quality of milk for making cheese, and to judging the cheese when it is ready for market.

207. Fancy Cheeses. Credit three hours. Lecture, W, 9. Dairy Building 218. Practice by appointment, M T, W Th, or F S, 10 a.m.-5 p.m. Dairy Building 152-154. Professor FISK and Mr. PRICE.

The best methods to be used in making the various kinds of soft cheeses, the commercial possibilities of these products, and marketing methods, will be discussed in these lectures.

The students will make a variety of cheeses, including cottage, baker's, cream, pimento, club, Neufchâtel, and Camembert.

208. Ice Cream. Credit three hours. Lectures, T Th, 9. Dairy Building. Practice, by appointment, M T W Th, or F S, 10 a.m.-5 p.m. Dairy Building 151. Professor FISK and Mr. SPINK.

The subject matter covered in the lectures consists of the successive steps in the making of ice cream; it will include, also, allied subjects, such as types of machines; refrigeration; quality of materials used; marketing; business management; factory construction and equipment.

The laboratory is equipped with both hand and power freezers. There are two types of the latter, one using ice for freezing and hardening, and one using mechanical refrigeration. Various kinds of ice cream are made, including custards and puddings. In the laboratory the student becomes familiar with the actual commercial business.

209. Market Milk. Credit two hours. Lectures, F, 8, S, 9. Dairy Building 218. Practice by appointment, M, Th, or S, 10 a.m.-5 p.m. Dairy Building 146. Professor ROSS and Messrs. CURRAN and ———.

This course includes the sanitary construction of dairy barns; score cards for dairy barns and market milk; food value of milk; standardizing milk and cream; legal standards for milk and cream; dairy utensils; the general production and handling of clean milk.

The laboratory work includes bottling; milk pasteurization; different methods of cooling milk; clarification; standardization of milk and cream; judging milk and cream for sanitary quality; the use of the sanitary score card in judging dairy barns and dairy plants.

210. Condensed and Powdered Milk. Credit three hours. Lecture, W, 8. Dairy Building 120. Practice, W Th, 10 a.m.-5 p.m. Dairy Building 139. Assistant Professor JACKSON.

This course considers the principles and practices of making condensed and powdered milk. Students will make sweetened condensed, evaporated, and superheated milk; and powdered whole milk, skimmilk, and buttermilk.

The laboratory is equipped with two types of condensing pans, sweetened condensed milk coolers, copper and glass-lined jacketed hot wells, homogenizer, filler, sterilizer and shaker; and the necessary equipment for laboratory work connected with condensing.

III. COURSE IN POULTRY HUSBANDRY

The winter course in poultry husbandry is one of the means by which the College of Agriculture attempts to meet the needs of farmers. The course is intended also to assist in supplying the large and growing demand for trained poultrymen to take charge of poultry plants owned by others. Although it is manifestly impossible in twelve weeks to give full preparation for so exacting a business as poultry keeping, this course will start the student in the right direction, enable him to avoid many mistakes, and offer him facts and principles of value gleaned from the lifelong experience, study, and observation of others. Persons expecting to take up poultry raising professionally should register in the course in poultry husbandry, not in the course in agriculture. Applicants must furnish satisfactory evidence of having had at least six months experience in working on an approved farm or poultry plant.

A meeting of all winter-course students in poultry husbandry with the staff of the department will be held at five o'clock on the afternoon of registration day, November 7, in Poultry Building 375.

Special Expenses

| | |
|---|---------|
| Laboratory fee (to pay in part for material used) | \$12.00 |
| General supplies | 12.00 |
| Excursions | 50.00 |

Besides these expenses, about \$5 worth of books are usually bought and retained by the student. For the cost of board and other expenses, see page 10. If the prospective student owns a set of drawing instruments, he should bring them and thereby save part of the expense for general supplies.

Required Subjects

1. **Poultry Husbandry.** Six hours a week. Open only to students in the professional course. Lectures, M T W Th S, 9; F, 8.15, and by appointment. Poultry Building 375. Examination, W, 10-12.30. Poultry Building 300. Professors RICE and HEUSER, Assistant Professors BOTSFORD and WEAVER, and Messrs. BRADLEY, POWELL, HALL, and LEE.

The lectures include discussions of subjects of special interest to poultrymen; opportunities in poultry husbandry; advantages and disadvantages of various types of poultry keeping; laying out and estimating the cost of poultry plants; poultry-farm management; history and characteristics of breeds; feeding for egg production and for flesh; feeding young chickens; incubating and brooding;



STUDENTS LEARN TO KNOW AND TO JUDGE VARIOUS BREEDS

Students are given opportunity to learn the history and the characteristics of the different breeds and how to select individual birds

principles of poultry-house construction; capons and caponizing; diseases; preparing eggs and poultry for market; marketing poultry products. Assignments for reading will be announced.

2. Special Lectures. Two hours a week. Open only to students in the professional course. T Th, 4.45-5.45; F, 9; Poultry Building 375, and Roberts Hall 131.

A course of lectures, not limited to the subject of poultry husbandry, given by members of the staff of many of the departments of the College of Agriculture and of the Cornell Medical College and by men of experience outside of the University.

3. Laboratory Practice. Four hours a week. Open only to students in the professional course. T W Th F, 2-4; F, 10-12.30. Poultry Building 300. Mr. ANDREWS and members of the staff.

This course includes the designing and drawing of plans for poultry buildings and colony houses; laying out poultry plants; selecting fowls for mating; killing, dressing, picking, and marketing poultry; testing, grading, and packing eggs; study of the formation and structure of the egg; anatomy of poultry; caponizing; study of poultry feeds; mixing rations; balancing rations; judging and scoring for fancy points and for production; sanitation.

5. Flock Management. One hour a week. Open to students in the professional course or to those who have taken or are taking course 11 (page 23). Practice periods and extra time arranged by appointment. Practice, reporting three times daily (including Sunday) for four weeks, 8-8.30, 12.30-1, 4-4.30. Poultry Plant. Mr. ANDREWS.

Practice in record keeping and management of fowls for egg production and for fattening.

6. Poultry Mechanics and Appliances. One hour a week. Open only to students in the professional course. Hours to be arranged. Poultry Building 125. Mr. KIRM.

Instruction in the use of power tools; machinery and equipment. Making shipping coops, catching hooks, and other poultry appliances.

7. Incubator Practice. One hour a week. Open to students in the professional course or to those who have taken or are taking course 11 (page 23). Practice, reporting three times daily (including Sunday) for four weeks, 8-8.30, 12.30-1, 4-4.30. Poultry Building 1. Assistant Professor WEAVER.

Practice in operating incubators, testing eggs, keeping records, and comparison of results.

8. Brooder Practice. One hour a week. Open to students in the professional course or to those who have taken or are taking course 11 (page 23). Practice, reporting three times daily (including Sunday) for four weeks, 8-8.30, 12.30-1, 4-4.30. Poultry Plant. Assistant Professor WEAVER.

Practice in the management of a brooder and a flock of chickens; keeping of temperature, food, and growth records.

9. Poultry Accounts. One hour a week. Open only to students in the professional course. M, 10-12.30. Poultry Building 300. Assistant Professor BOTSFORD.

Comparison of various methods of poultry-farm accounting, and practice in recording a set of transactions. A study will be made of the summarized results to determine the profit or loss in the various poultry-farm operations.

Excursions. One three-day trip will be taken, during the days immediately following the Christmas vacation, to visit successful New York State farms and the New York City markets. This trip is required, and every student must take it in order to receive full credit for the course. The total expense is \$40 to \$50.

IV. COURSE IN FRUIT GROWING

The course is intended to meet the requirements of persons engaged in commercial fruit growing. Lectures will cover the relation of the fundamental sciences to the various orchard operations, and a digest of experimental work bearing on fruit growing. Special emphasis will be placed on the interpretation of experimental work with reference to New York conditions. In the laboratory exercises each student will be given opportunity to perform all the orchard operations which the season will permit. The course should be of value to men who are preparing to become managers or foremen of fruit farms. Unless the student has had considerable previous experience, the course will not equip him for such a position.

Not more than twenty-five students can be admitted to this course unless some of the applicants have previously had work in plant pathology.

Required Subjects

All students in this course who have not already satisfactorily completed the winter course in agriculture are required to take the subjects that follow. Those who have completed the winter course in agriculture may elect other subjects, but should consult with their faculty adviser before making the election.

1. **Commercial Fruit Growing.** Six hours a week. Lectures, M T W Th, 9. Practice, M W, 10-1. Roberts Hall 202. Professors OSKAMP and PECK.

This course includes a study of methods of propagation; principles of budding and grafting; soils, varieties, and planting plans for the orchard; cultivation; cover crops, fertilization, and pruning, as practiced in orchard management; picking, grading, packing, storing, and marketing fruit. The course considers the apple, pear, quince, cherry, plum, peach, grape, raspberry, blackberry, currant, gooseberry, and strawberry. Laboratory fee, \$2.

1. **Plant Diseases.** (See page 22.)

1. **Injurious Insects** (See page 20.)

200. **Agronomy.** (See page 19.)

2. **Agricultural Economics and Farm Management.** (See page 19.)

V. COURSE IN HOME ECONOMICS

Not given in 1923-24

VI. COURSE IN FLOWER GROWING

New York is distinctly a flower-growing State. The financial interests of the industry are greater in this than in any other State in the Union. There is keen competition among flower growers, and progressive young men realize that they must equip themselves with all the information possible if they are to make a success of the business. Two courses are offered for those especially interested in commercial floriculture. These, with other required subjects, should give the student a broad knowledge of the subject and equip him well for his work.

Interest in flower growing, however, is not confined to men engaged in the commercial industry. There is an increasing demand from amateurs for information regarding the culture of plants to be used about the home or the school grounds. Courses have been arranged with a view to meeting this demand. These courses are outlined on pages 21 and 22. Those following are planned especially for persons who intend to engage in commercial floriculture. Course 2 is equally well suited for those interested in vegetable forcing under glass.

Required Subjects

1. **Commercial Floriculture and Greenhouse Practice.** Five hours a week. Lectures, W 3, M Th F S, 8. Floriculture Building. Practice, S, 10-12.30. Greenhouses. Professor WHITE and Assistant Professor NEHRING.

A study of the methods of growing standard florist's crops, such as roses, carnations, violets, sweet peas, orchids, and plants for bedding. So far as possible, laboratory practice in growing these crops will be given. The course is designed to familiarize the student with the ordinary work of the greenhouse and the garden. Laboratory fee, \$3.

2. **Commercial Greenhouse and Conservatory Construction and Heating.** Three hours a week. Lecture, M, 3. Floriculture Building. Practice, M, 10-12, W, 8-11. Floriculture Building. Mr. MANNING.

This course considers the details of the construction and heating of glasshouses for growing plants and vegetables; choice of location; water, soil, and light; glazing; all the conditions found in well-appointed modern ranges. The construction and care of hotbeds and coldframes are also studied. Laboratory work consists of drawings of construction details; the making of plans and specifications; preparation of estimates; any practical work in construction that may be available. Laboratory fee, \$1.50.

200. **Agronomy.** (See page 19.)

1. **Plant Diseases.** (See page 22.)

1. **Injurious Insects.** (See page 20.)

Elective Subjects

6. Gardening and Garden Flowers. (See page 22.)
4. Woody Plant Materials. (See page 21.)
3. Planning and Planting Rural Properties. (See page 21.)
1. Plant Breeding. (See page 22.)

VII. COURSE IN VEGETABLE GARDENING

With the rapid growth of cities and with vegetable food occupying a place of constantly increasing importance in the dietary, the demand for vegetables has increased greatly during the past few years. An ever-increasing number of persons are looking to the growing of vegetables as a source of their income, particularly on highly specialized vegetable farms or in connection with other less-intensive types of agriculture.

In view of this growing interest in vegetable culture, the Department of Vegetable Gardening offers the following course. This course is intended to meet the needs of persons who desire to obtain, in a short time, a fundamental knowledge of the principles and practices of commercial vegetable growing. The principles underlying successful vegetable production, storage, and marketing are discussed, together with experimental evidence when available. Methods of applying these principles to different types of vegetable gardening are described.

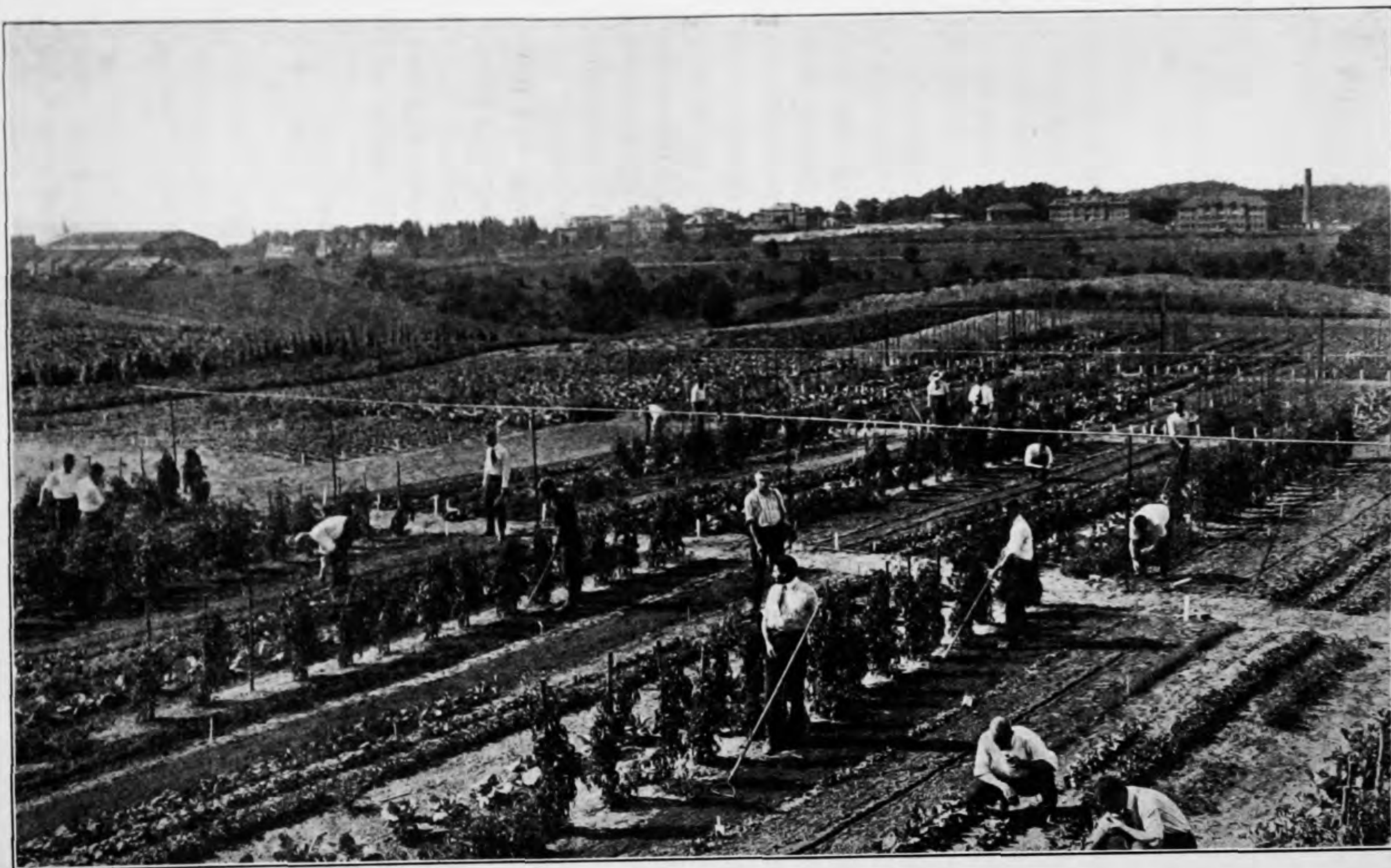
This course is designed especially for students who have had farm experience. It should be of value to owners, and to those who plan to become managers or superintendents of vegetable farms.

Students without experience, but desiring some knowledge of either home or commercial vegetable gardening, will find the course described on page 23 suited to their needs.

Required Subjects

1. Commercial Vegetable Gardening. Five hours a week. Lectures, M T Th F, 2. Poultry Building 175. Laboratory, W, 2-4.30. Poultry Building 175 and Vegetable Greenhouses. Assistant Professor SCHNECK.

A study of the principles underlying successful vegetable production and marketing. A comprehensive survey of the vegetable industry is given. The problems of the market gardener, the vegetable forcer, the truck grower, the muck-land farmer, and the producer of canning crops are considered. The lectures deal with questions of location, equipment, soil management, seed, and



VEGETABLE GARDENS, WITH THE COLLEGE OF AGRICULTURE IN THE BACKGROUND
The practice work for winter-course students is transferred to the laboratories and greenhouses

plant growing. Each important vegetable crop is considered individually as regards use, importance, adaptation, fertilizer requirements, culture, varieties, enemies, harvesting, storage, and marketing.

The laboratory work includes plant growing, hotbed and coldframe construction and management, greenhouse fumigation and soil sterilization, seed and seedling studies, and seed testing. Each student will be assigned space in the greenhouses for the growing of crops. Plants are grown under glass as would be done for outdoor setting. Members of the class who desire may participate in a one-day excursion to Rochester, in January, to visit vegetable greenhouses; cost, about \$9. Laboratory fee, \$1.50.

Unless taken in a previous winter course the following subjects must be included in the student's schedule:

200. **Agronomy.** (See page 19.)

1. **Injurious Insects.** (See page 20.)

1. **Plant Diseases.** (See page 22.)

At least one of the next four courses:

1. **Agricultural Economics and Farm Management.** (See page 18.)

2. **Agricultural Economics and Farm Management** (See page 19.)

1. **Plant Breeding.** (See page 22.)

11. **Poultry Husbandry.** (See page 23.)

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This series of pamphlets is designed to give prospective students and other persons information about Cornell University. No charge is made for the pamphlet unless a price is indicated after its name in the list below. Requests for pamphlets should be addressed to the Secretary of the University at Ithaca. *Money orders should be made payable to CORNELL UNIVERSITY.*

The prospective student should have a copy of the

General Circular of Information

and a copy of one or more of the following Announcements:

Announcement of the College of Arts and Sciences.

Announcement of the College of Engineering.

Announcement of the College of Law.

Announcement of the College of Architecture.

Announcement of the New York State College of Agriculture.

Announcement of the Winter Courses in the College of Agriculture.

Announcement of the New York State Veterinary College.

Announcement of the Department of Chemistry.

Announcement of the Graduate School.

Announcement of the Summer Session.

Announcement of the Summer Session of the College of Law.

Announcement of the Summer School of Biology.

Program of the Annual Farmers' Week.

Annual Report of the President.

Special departmental announcements, a list of prizes, etc.

Other periodicals are these:

The Register, published annually in September, and containing, not announcements of courses, but a comprehensive record of the University's organization and work during the preceding year. Price, 50 cents.

Guide to the Campus. Illustrated. Price, 50 cents.

Directory of the University. Price, 10 cents.

The *Announcement of the Medical College* may be obtained by addressing the Cornell University Medical College, Ithaca, N. Y.

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